③ $\frac{1}{x-4} + \frac{1}{x+4} = \frac{22}{x^2-16}$

② $\cdot (x+4)(x-4)$ $\cdot (x+4)(x-4)$ $\cdot (x+4)(x-4)$

① LCD: $(x-4)(x+4)$

$x+4 + x-4 = 22$

$2x = 22$

$x = 11$

④ $\frac{-4}{x-3} + \frac{1}{1} = \frac{-10}{x^2+x-12}$

② $\cdot\frac{(x+4)(x-3)}{(x+4)(x-3)}$ ③ $\cdot\frac{(x+4)(x-3)}{(x+4)(x-3)}$

① LCD: $(x-3)(x+4)$

$-4(x+4) + (x+4)(x-3) = -10$

$-4x-16+x^2+x-12 = -10$

$x^2-3x-28 = -10$

$+10 \quad +10$

$x^2-3x-18 = 0$

$0 = (x+3)(x-6)$

$x = -3, 6$

(5) $\frac{x+3}{x-5} = \frac{56-3x}{x^2-13x+40} \cdot (x-8)(x-5)$

$(x-8)(x-5)$

LCD: $(x-5)(x-8)$

$(x+3)(x-8) = 56-3x$

$x^2-5x-24 = 56-3x$

$x^2-2x-80 = 0$

$(x-10)(x+8) = 0$

$x = 10, -8$

⑥ $\frac{10}{x+3} - \frac{3}{5} = \frac{10x+1}{3(x+3)}$

$\cdot 15(x+3)$ $\cdot 3$ $\cdot 5$

LCD: $(x+3) \cdot 5 \cdot 3$

$= 15(x+3)$

$150 - 9(x+3) = 5(10x+1)$

$150 - 9x - 27 = 50x + 5$

$123 - 9x = 50x + 5$

$+9x \quad +9x$

$123 = 59x + 5$

$-5 \quad -5$

$\frac{118}{59} = \frac{59x}{59}$

$2 = x$

① $d = s + \frac{s^2}{20}$

$\frac{75}{1} \cdot 20 = \frac{s}{1} \cdot 20 + \frac{s^2}{20} \cdot 20$

LCD: 20

$1500 = 20s + s^2$
$-1500 \quad -1500$

$0 = s^2 + 20s - 1500$

$0 = (s + 50)(s - 30)$

$s = -50, 30$

② $D = \frac{5000x}{x^2+36}$

$\frac{400}{1} = \frac{5000x}{x^2+36}$

$400(x^2+36) = 5000x$

$400x^2 + 14{,}400 = 5000x$

$-5000x \quad -5000x$

$400x^2 - 5000x + 14400 = 0$

$4x^2 - 50x + 144 = 0$

$2x^2 - 25x + 72 = 0$

$(2x-9)(x-8) = 0$

$2x-9=0$ $\quad$ $x-8=0$

$x=4.5$ $\quad$ $x=8$

③ $120 \cdot \frac{c}{1} = 10c \cdot \frac{c}{1} + \frac{360}{c} \cdot c$

LCD: c

$120c = 10c^2 + 360$

$-120c \qquad -120c$

$0 = 10c^2 - 120c + 360$ (divide all by 10)

$0 = c^2 - 12c + 36$

$0 = (c-6)(c-6)$

$c = 6$

(4) @ $C = \dfrac{3x^2(x-4)}{(x-4)(x+3)}$

$3x^3 - 12x^2$

$3x^2(x-4)$

$$C = \frac{3x^2}{x+3}$$

(b) $C = \dfrac{3(30)^2}{30+3}$

$C = \dfrac{2700}{33} = \$81.82$